peating the ignition switch tests and reinstall the switch lead (1).

3. If disconnected, connect the free end of the throttle rod to the trigger in the handle assembly. Place the handle assembly in position with the oiler rod going down through the slot into the oiler pump. Slide the top shroud between the handle assembly and the engine. Coat the threads of the three handle attaching screws with Loctite and install them. Make sure you use the special nut on the rear screw. Tighten each of the three screws to a torque value of 35 to 40 inch pounds. Make sure the oiler button and throttle trigger operate correctly.

4. Bring the wire lead from the ignition switch between the breaker box and the carburetor and slide it onto the connector. If the lower end of the wire lead was removed, reinstall it on the breaker box.

5. Reinstall the air filter and air filter cover. Reinstall the flywheel and fan housing.

FUEL SYSTEM

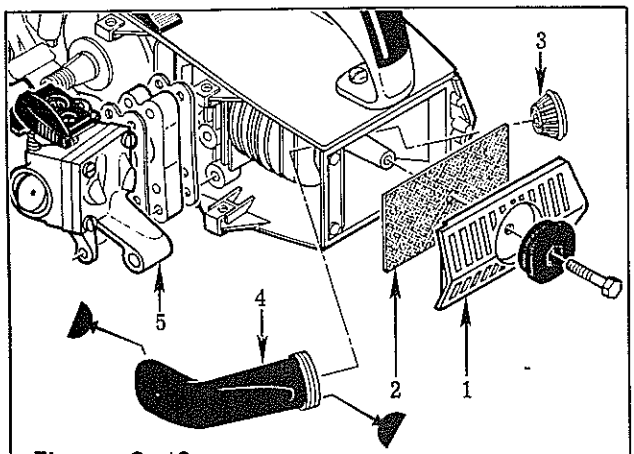

Figure 3-48 A-10418

The fuel system consists of the fuel tank, fuel filter and fitting, air filter, air duct and carburetor. The fuel tank, fuel filter and fitting are covered on page 15 of this section. The air filter (2, Figure 3-48) is located inside the air filter cover (1) at the rear of the saw. The air duct (4) and carburetor (5) are behind the fan housing.

AIR FILTER

SERVICING THE AIR FILTER

1. Wash the filter with petroleum solvent or gasoline. Blow the filter dry with low (three to five pounds) pressure air. Reinstall it with the same side toward the air filter cover as when originally installed.

2. Examine the air filter for damage. Some filters have a rubber bonded edge. If the rubber bond has separated from the felt install a new filter. If the filter is damaged in any way, install a new filter.

AIR DUCT

The air duct runs between the air filter housing and the carburetor. At the housing end the duct contains a plastic duct shield (3, Figure 3-48). The shield is to prevent the entrance of larger objects into the air stream. It does not replace or substitute for the air filter.

REMOVAL

Before removing the air duct, carefully pry the plastic shield (3) out of the duct. Work only on the rim of the shield, do not pry on the ribbed portion as the plastic ribs can be easily broken. Disconnect the duct at both ends by carefully pulling the duct away from the carburetor and air filter housing.

SERVICING

If the duct is torn, broken, stretched or has pin holes, it should be discarded and a new duct installed. The duct can be cleaned with solvent and blown dry with low (three to five pounds) pressure air.

INSTALLATION

1. Coat the interior of the carburetor end of the duct and the exterior of the housing end with SAE 30 oil to make installation of the duct easier.

2. Work the duct over the carburetor intake flange. If necessary, carefully use a small screwdriver. Turn the duct to fit the housing opening.

3. Work the duct into the housing flange. Pinch the duct if necessary and then spread it carefully after installation so that no pinched portion remains. Carefully seat the plastic shield into the duct.

Reinstall the air filter and air filter cover.

CARBURETOR

Remove the fan housing to remove the carburetor.

It is not necessary to remove the carburetor from the engine to work on the idle speed screw, fuel mixture needles, fuel pump, fuel inlet valve or choke. The idle speed screw and fuel mixture needles can be removed through the adjustment cover plate next to the choke lever. The fuel pump, fuel inlet valve and choke are accessible after disengaging the air duct and moving it aside. Follow the disassembly instructions for the parts concerned.

REMOVAL

1. Disconnect the air duct from the carburetor.

2. Turn the flywheel so the magnet laminations in the

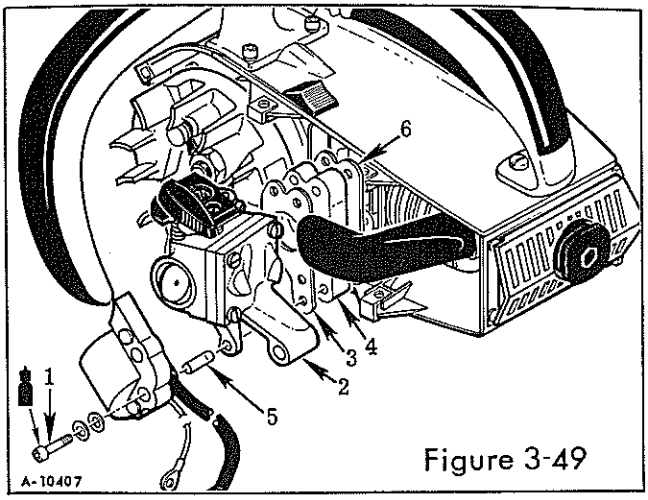

Figure 3-49

flywheel rim are away from the coil and lamination assembly. Remove the two screws (1, Figure 3-49) attaching the coil and lamination assembly to the carburetor. Lift the coil and lamination assembly aside.

3. Remove the third screw (1) attaching the upper end of the carburetor (2) to the crankcase and pull the carburetor away from the crankcase. Twist the carburetor a quarter turn counterclockwise to release it from the throttle rod and remove the carburetor.

4. The carburetor insulator (4) will probably come away with the carburetor. Remove the insulator, carburetor gasket (3) and three insulating tubes (5) from the carburetor. Remove the insulator gasket (6) from the crankcase. Discard the two gaskets.

DISASSEMBLY

a. Fuel Pump, Inlet Valve and Fuel Check Valve

1. Remove the four screws (1, Figure 3-50) attaching the pump cover (2) to the carburetor and remove the carburetor. The vent screen (4) in the pump cover prevents dirt entering the dry side of the carburetor diaphragm. To remove the vent screen, remove the retainer (3) and push the screen out with a fine drill rod from inside the cover. The fuel inlet screen (5) can be bumped out of the fuel inlet passage.

2. Remove the fuel pump diaphragm (6), diaphragm gasket (7) and fuel pump body (8) from the carburetor. The carburetor diaphragm (9) will probably come with the fuel pump body. Remove it and the gasket (10).

3. Loosen the inlet lever pin screw (11) and remove the pin (12), lever (13) and spring (14). Be careful not to lose the spring as it is under tension. Remove the screw and bump the inlet needle (15) out into the palm of your hand.

4. Drill the welsh plugs (16) and remove them with a pick. Remove the check valve seat assembly (17) and valve (18). This valve prevents air bleeding in-

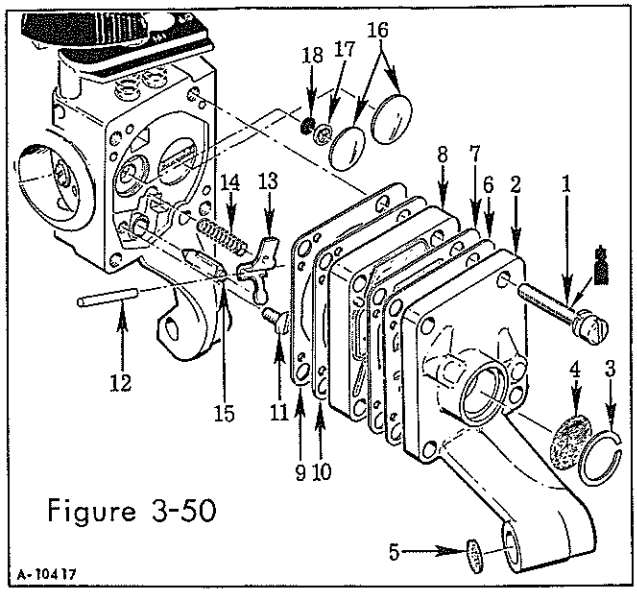

Figure 3-50

to the idle fuel passage while the engine is idling.

b. Idle Speed Screw and Fuel Mixture Needles

1. Remove the idle speed screw (1, Figure 3-51). Remove the idle adjustment needle (2) and high speed needle (3). Remove the springs (4) from the needles.

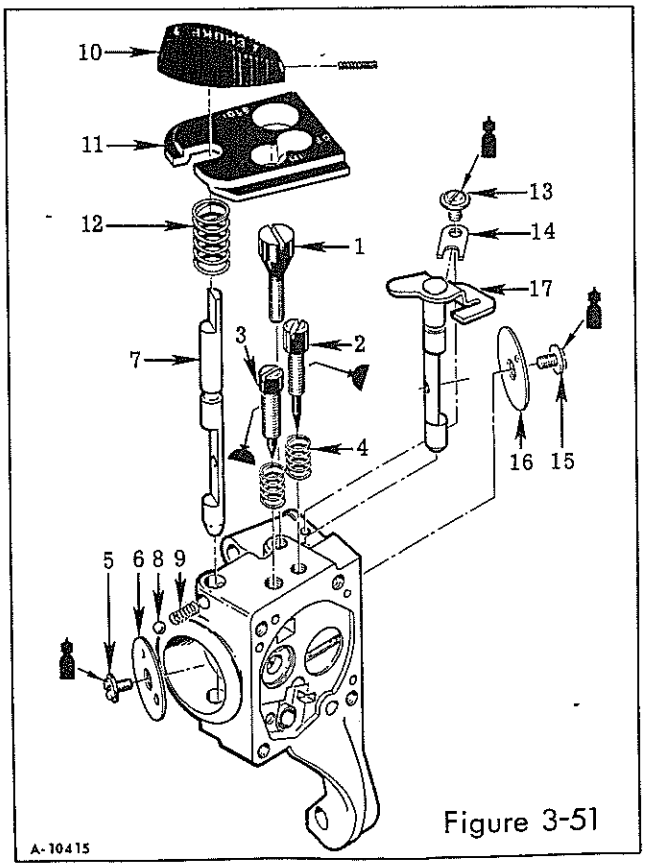

Figure 3-51

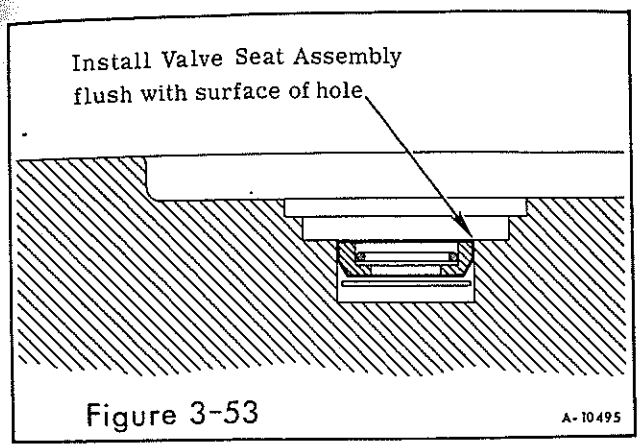

Figure 3-53

the pin (12) and tightening the screw (11). Make sure the lever moves easily. If the lever is not flush with the carburetor body diaphragm surface (Figure 3-54), bend the lever in the proper direction.

3. Place the diaphragm gasket (10) and carburetor diaphragm (9) on the body with the metal plate of the diaphragm against the inlet control lever. Make sure the screw holes line up. Add the fuel pump body (8) with the pins in the body fitting into the pin holes in the carburetor body. Place the diaphragm gasket (7) and diaphragm (6) on the body. Install the cover. Make sure all the screw holes are aligned. Coat the four screws (1) with Loctite and install them.

4. Insert the fuel screen (5) into the inlet line. Install the vent screen (4) and retainer (3).

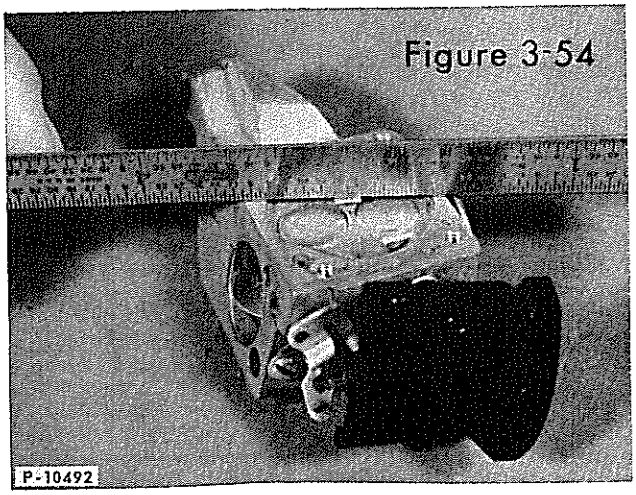

Figure 3-54

b. High Speed Screw and Fuel Mixture Needles

Do not put Loctite on these parts. The shorter of the two needles is the high speed needle and goes next to the choke shaft. The needles cannot be installed in the wrong holes. Do not force them. Run them in only until resistance is felt and then stop. See Carburetor Adjustment on page 30.

c. Choke

1. Place the spring (12, Figure 3-51) and plate (11) on the choke shaft.

2. Push the choke retainer spring (9) and detent ball (8) into the body. Insert the choke shaft and turn the shaft so the flat side is toward the air passage entrance. Place the choke plate (6) on the shaft with the dimple up against the inner left side of the shaft (Figure 3-55). Coat the screw (5) with Loctite and install it. Make sure the choke shaft turns easily.

d. Throttle

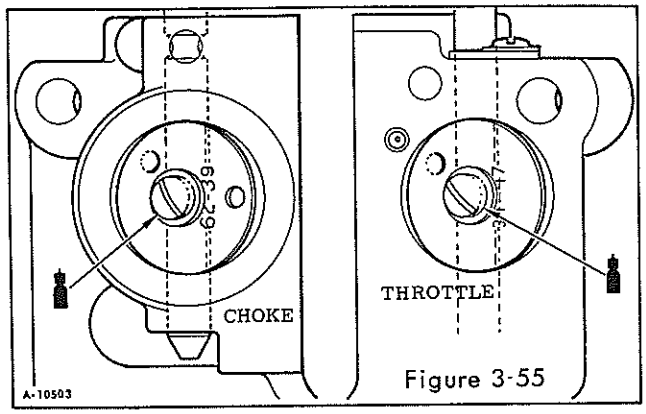

Figure 3-55

1. Insert the throttle shaft into the body. Install the shaft clip (14, Figure 3-51) with the screw (13). Use Loctite on the screw.

2. Turn the shaft so the flat side is toward the air passage exit. Place the throttle plate (15) on the shaft with the dimple on the plate toward the inside of the passage and up against the inner upper left side of the shaft (Figure 3-55). Put a drop of Loctite on screw (15) and install the screw. Make sure the shaft turns easily.

INSTALLATION

1. Use new insulator and carburetor gaskets. Place them on the insulator (Figure 3-49). Make sure the air/fuel passage holes line up. Insert the three plastic insulating tubes through the insulator and gaskets and mount the insulator and gaskets on the carburetor with the tubes.

2. Hold the assembled carburetor/insulator with its top toward the breaker box and its bottom toward the rear of the saw (Figure 3-56). Hook the throttle rod into the throttle link and swing the carburetor clockwise into position while sliding the rod into its engagement with the link. Put a drop of Loctite on the upper carburetor attaching screw and install it.

3. Put a drop of Loctite on the two lower attaching screws and reinstall the coil and lamination on the carburetor with the coil ground wire going between the metal washer and the screw head of the middle screw.

4. Operate the throttle trigger to make sure there is no binding and to make sure that when the trigger is in the fully closed position the throttle plate is also in the fully closed position.

5. Slide the primary wire clip onto the primary post of the coil and coat the clip with Dow-Corning Silastic RTV732 or similar non-conductive sealant. Reinstall the air duct using a little SAE 30 oil on the inside of the air duct lip to help slide it over the bulge of the air passage entrance of the carburetor.

6. After adjusting the lamination gap (see page 24), tighten all three attaching screws to 35 to 40 inch pounds and reinstall the fan housing.

7. Adjust the carburetor.

CARBURETOR ADJUSTMENT

1. Carefully turn the idle and high speed adjustment needles (Figure 3-51) clockwise until resistance is felt. Do not turn the needles further or the tips and seats can be damaged. Open (turn counterclockwise) each needle 3/4 of a turn.

2. Turn the idle speed screw counterclockwise until the throttle rod and link (as seen through the oblong inspection hole just to the right of the screw) stop moving forward. Turn the idle speed screw clockwise just until the link and rod move rearward.

3. Start the engine and let it warm up for at least three minutes. Do not race the engine. If the engine keeps stopping, turn the idle speed screw clockwise until the motor keeps running. If the sprocket turns or the chain moves, turn the screw counterclockwise until it stops.

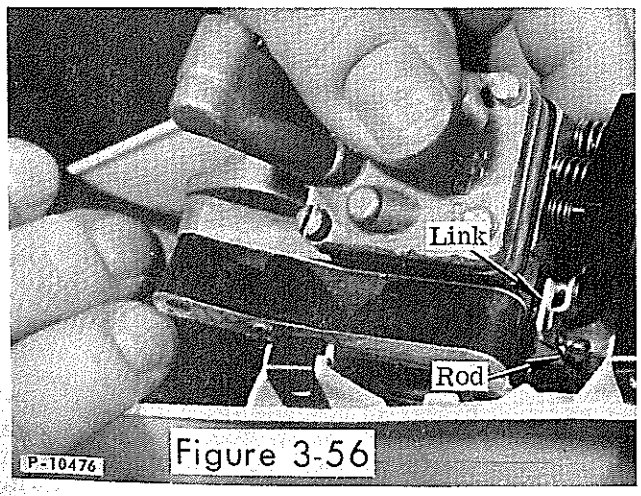

Figure 3-56

4. Hold the engine nose down and turn the idle adjustment needle until the engine idles smoothly and accelerates without hesitation or stumbling. Final position of the idle adjustment needle will usually be between 1/2 and 3/4 of a turn open. Turn the engine to see that it idles smoothly in all positions.

5. Readjust the idle speed screw to a point just below where the sprocket turns or the chain starts to move.

6. While cutting wood with the saw, adjust the high speed adjustment needle for best power. Do not judge by the sound; judge by the way the saw cuts. Final position of the high speed adjustment needle should be 1/2 to 3/4 of a turn open, but closer to 1/2 than to 3/4 of a turn.

7. Check idle operation again. It may be necessary to adjust the idle fuel needle slightly after setting the high speed adjustment to obtain best idle performance.

STARTER

A new starter drum, starter spring and fan housing were installed on PM-6 saws beginning with serial numbers prefixed 12-, A10- and C12- and on PM-6A saws with serial numbers prefixed 10-, A10- and C10-. Figure 3-57 shows the new assembly. The new parts can be installed on engines with earlier prefix serial numbers as indicated in the paragraphs which follow. Servicing and maintenance of the new starter is the same as for the old starter.

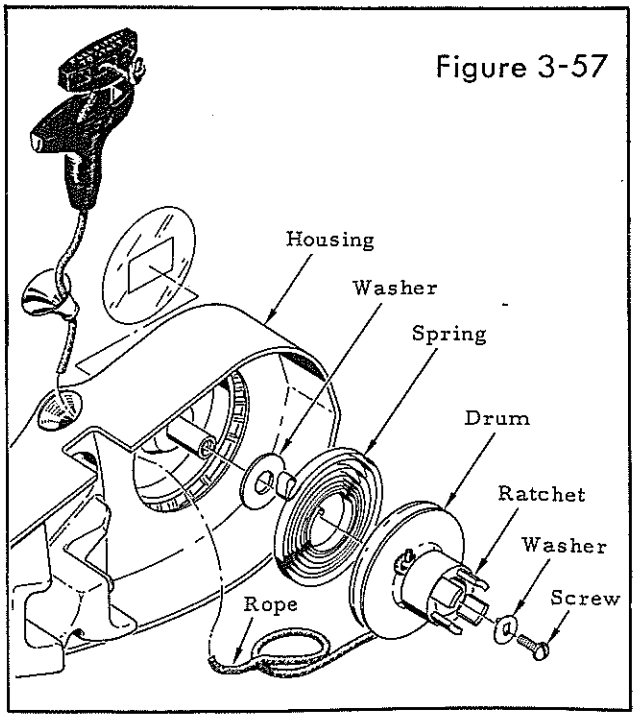

Figure 3-57

STARTER DRUM

Original starter drums and new starter drums are shown in Figure 3-58. Except for a run of fifty engines, all new drums are made of black plastic. The fifty engines had magnesium drums and required the use of Starter Washer, P/N 68496, installed as shown in Figure 3-2.